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植物保护—研究报告

生防菌K-8对南方根结线虫的防治及其鉴定

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摘要:

为了明确生防菌株K-8对南方根结线虫的防效及其分类地位，采用亚甲基蓝染色法测定了生防菌株K-8的发酵液对南方根结线虫二龄幼虫存活的影响，考察了其对南方根结线虫的防效，对其鉴定采用生理生化法、表型培养观察法、脂肪酸分析并结合16S rDNA序列分析法。结果表明，击倒试验发现，生防菌株K-8发酵液对南方根结线虫二龄幼虫有一定的杀伤作用，其矫正死亡率为70.8%，与化学药剂200 g/L克线丹的69.4%将近。菌株K-8对南方根结线虫温室盆栽防治效果为47.8%，明显高于对照200 g/L克线丹的防效41.3%。菌株K-8的形态与生理生化特性与巨大芽孢杆菌很接近，根据SI值和差值，脂肪分析把其鉴定为Bacillus megaterium，由16S rDNA序列分析的系统发育树发现，菌株K-8的序列与Bacillus megaterium 构成一个分支，进化上的距离最近，由此可将其鉴定为巨大芽孢杆菌Bacillus megaterium。综合三种鉴定方法，最后把菌株鉴定为巨大芽孢杆菌Bacillus megaterium。

关键词: 防效

The Identification of Biocontrol Bacterium K-8 and Its Biological Control against Meloidogyne incognita

Abstract:

In order to evaluate classification status of biocontrol K-8 and its control efficacy to Meloidogyne incognita, using methylene blue staining method, death efficacy of biocontrol strain K-8 to Meloidogyne incogita was determined, its control efficacy to Meloidogyne incognita was studied by pot tests, and its identification was launched by means of phenotypic characteristics observation, physiological and biochemical indexes determination, FAME identity and the assay of 16S rDNA sequences. The results showed that the fermentation broth of strain K-8 showed a better killing effect on second stage juvennil Meloidogyne incognita and its correct death rate was 70.8%, which was close to that of 69.4% of 200 g/L cadusafos, pot trials of strain K-8 indicated that it had a better control efficacy to Meloidogyne incognita and was 47.8%, significantly better than that of 41.3% of 200 g/L cadusafos. According to the similarity index (SI) and its difference, fat analysis showed that strain K-8 could be identified as Bacillus megaterium, in accordance with the first choice entry name. Phenotypic, physiological and biochemical characteristics of strain K-8 were very close to Bacillus megaterium, in addition, we found that strain K-8 and the sequence of Bacillus megaterium constituted a separate branch and had a nearest evolutionary distance by phylogenetic tree of 16S rDNA sequences. According to the morphological, physiological and biochemical characteristics, FAME identity and based on phylogenetic analysis, strain K-8 was identified as B megaterium.

Keywords: control efficacy

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